CLAIMS

1. Stereomicroscope
   - with a binocular tube (1),
   - with a microscope body (4),
   - with a microscope holder (14) that is connected to a focus-adjusting mechanism (9), the focus-adjusting mechanism (9) in turn being fastened to a stand (13),
   - with a carrier (12) bearing the microscope body (4) and being displaceable obliquely relative to the displacement direction of the focus-adjusting mechanism (9),
   - with a binocular beam splitter (2a) used to combine the two stereoscopic observation beam paths (3a, 3b) into a common beam path (3c), wherein the axes of the two observation beam paths (3a, 3b) entering into the binocular beam splitter (2a) and the axis of the beam path (3c) emerging from the binocular beam splitter (2a) are parallel to each other, and the axis of the emerging beam path (3c) is disposed at distance (Vs) from the symmetry axis of the two entering observation beam paths (3a, 3b) it being possible to compensate for said displacement (Vs) by the displacement range of the carrier (12),
   - with a switching device (5) held on a holder (14) and provided with mounts for at least one stereo lens (6) and at least one compound lens (7), wherein by actuating the switching device (5) the lenses (6, 7) can selectively be brought over an object (8) and both the stereo lens (6) and the compound lens (7) can be placed over the object (8) parfocally and parcentrically,
   - with a gear (10) which, depending on the position of the switching device (5), automatically brings about the displacement of the carrier (12),

   characterized in that the binocular beam splitter (2a) is disposed between the carrier (12) and the compound lens (7).

2. Stereomicroscope, particularly as defined in claim 1, configured as an incident-light stereomicroscope,
   - with a binocular tube (1),
   - with a microscope body (4) comprising an incident-light illumination system or a connection therefor, particularly an incident fluorescent light illumination system fitted with exciter and blocking filters (19a, 19b),
   - with a microscope holder (14) connected to a focus-adjusting mechanism (9), said focus-adjusting mechanism (9) in turn being fastened to a stand (13),
   - with a carrier (12) bearing the microscope body (4), the carrier being displaceable relative to the holder (14) across the displacement direction of the focus-adjusting

mechanism (9),

- with a binocular beam splitter (2a) used to bring together the two stereoscopic observation beam paths (3a, 3b) to form a common beam path (3c), wherein the axes of the two observation beam paths (3a, 3b) entering the binocular beam splitter (2a) and the axis of the beam path (3c) emerging from the binocular beam splitter (2a) are parallel to each other, and the axis of the emerging beam path (3c) shows a displacement (Vs) from the symmetry axis of the two entering observation beam paths (3a, 3b) which displacement can be compensated for by the displacement range of the carrier (12).
- with a system for coupling the illumination beam path (34) into the beam path (3c) emerging from the binocular beam splitter (2a),
- with a switching device (5) supported on the holder (14) and having mounts for at least one stereo lens (6) and at least one compound lens (7), wherein by actuating the switching device (5) the lenses (6, 7) can selectively be brought over an object (8) and both the stereo lens (6) and the compound lens (7) can be placed over the object (8) parfocally and parcentrically,
- with a gear (10) which, depending on the position of the switching device (5), automatically brings about the displacement of the carrier (12),

characterized in that in the microscope body (4) there is provided besides the stereoscopic observation beam paths (3a, 3b) an illumination beam path (34) which is separated therefrom and is preferably parallel thereto and which when the stereo lens (6) is selected passes through said lens.

3. Stereomicroscope as defined in claim 2, **characterized in that** the binocular beam splitter (2a) is disposed between the carrier (12) and the compound lens (7).

4. Stereomicroscope as defined in claim 1 or 2, **characterized in that** the displacement range of the carrier (12) corresponding to the displacement (Vs) comprises path components corresponding to displacement components (Vsx, Vsy) in at least two directions (X/Y) of a plane.

5. Stereomicroscope as defined in one of the preceding claims, **characterized in that** the displacement range of the carrier (12) corresponds to a displacement range of the microscope body (4) such that the two stereoscopic observation beam paths (3a, 3b) can selectively

a) either pass through the stereo lens (6) or

b) coincide with the inlet axes of the binocular beam splitter (2a),
For case a) the following then preferably applies: The axes of the observation beam paths 3a, 3b and the axis of the stereo lens (6) are parallel, and the axes of the observation beam paths 3a, 3b are mirror-symmetrical to each other with respect to the plane in which also lies the axis of the stereo lens (6).

6. Stereomicroscope as defined in claim 5, **characterized in that** in case a) the axes of the stereoscopic observation beam paths (3a, 3b) and the axis of the ste-reo lens (6) do not lie in a common plane.

7. Stereomicroscope as defined in one of the preceding claims, **characterized in that** the switching device (5) is configured as a rotatable turret or as a slider the direction of movement of which is essentially parallel to the common plane of the two observation beam paths (3a, 3b).

8. Stereomicroscope as defined in one of the preceding claims, **characterized in that** the holder (14), the gear (10), the displaceable carrier (12) and the switching device (5) form with the lens mounts and the binocular beam splitter (2a) a single unit which selectively can be connected to or detached from the microscope body (4) or preferably is retrofittable.

9. Stereomicroscope as defined in one of the preceding claims, **characterized in that** the holder (14), the gear (10), the displaceable carrier (12) and the switching device (5) form with the lens mounts and the binocular beam splitter (2a) and the illumination coupling-in device a single unit which selectively can be connected to or detached from the microscope body (4) or preferably is retrofittable.

10. Stereomicroscope as defined in one of the preceding claims, **characterized in that** the compound lens (7) from a group of such lenses can be selectively or inter-changeably connected with the switching device (5) or with the binocular beam splitter (2a) or with the illumination coupling-in device (15).

11. Stereomicroscope as defined in one of the preceding claims, **characterized in that** the mount for the compound lens (7) comprises a fine-focusing system (11).

12. Stereomicroscope as defined in one of the preceding claims, **characterized in that** at least one of the mounts comprises an adjustable system for adjusting the lens (7) preferably in a direction across the lens axis.

13. Stereomicroscope as defined in one of the preceding claims, **characterized in that** the stereo lens (6) can be selected from a group of stereo lenses or switched with a lens from such a group.

14. Stereomicroscope as defined in one of the preceding claims, **characterized in that** the switching device (5) can be rotated through an angle of 360 degrees and preferably is provided with latches.

15. Stereomicroscope as defined in one of the preceding claims, **characterized in that** the holder (14) is L-shaped, the short part of the "L" being fastened to the focus-adjusting mechanism (9).

16. Stereomicroscope as defined in one of the preceding claims 1, 3-15, **characterized in that** it comprises an incident-light illumination system where the illumination beam path passes coaxially through one or both of the two stereoscopic illumination beam paths (3a, 3b) in the microscope body (4) and, in particular, that it comprises a incident fluorescent light illumination system with exciter and blocking filters (19a, 19b).

17. Stereomicroscope as defined in one of the preceding claims, **characterized in that** the device for illumination in-coupling (15) comprises a mirror (42) and/or a beam splitter (43) disposed between the binocular beam splitter (2a) and the compound lens (7).

18. Stereomicroscope as defined in claim 17, **characterized in that** the mirror (42) is adjustable.

19. Stereomicroscope as defined in claim 17 or 18, **characterized in that** the beam splitter (43) is configured as a neutral-tint beam splitter.

20. Stereomicroscope as defined in claim 17 or 18, **characterized in that** the beam splitter (43) is configured as a dichroic beam splitter and, in particular, is adapted to the filter properties of the exciter and blocking filters (19a, 19b) and optionally

can be selected from a group of beam splitters or switched with a beam splitter from such a group.

21. Stereomicroscope as defined in one of the preceding claims, **characterized in that** the beam splitter (43) is configured as a flat component with main boundary surfaces extending parallel to the beam splitter surface.

22. Stereomicroscope as defined in one of the preceding claims, **characterized in that** the binocular beam splitter (2a) is replaced by a Y-prism (2b), and that the carrier (12) and the gear (10) as well as any displaceability for compensation of a displacement (Vs) are omitted.

23. Stereomicroscope as defined in one of the preceding claims 1 to 21, **characterized in that** the binocular beam splitter (2a) is replaced by a Y-prism (2b) and that the carrier (12) and the gear (10) permit the microscope body (4) to be displaced exclusively in a single spatial direction (Y) for the purpose of introducing a displacement (Vsy) of the stereo lens (6) in this spatial direction (Y).

24. Stereomicroscope as defined in claim 23, **characterized in that** the displacement range of the carrier (12) corresponds to a displacement range of the microscope body (4) such that both stereoscopic observation beam paths (3a, 3b) pass through the stereo lens (6) parcentrically to the compound lens, with the following preferably applying: The axes of the observation beam paths 3a, 3b and the axis of the stereo lens (6) are parallel, and the axes of the observation beam paths 3a, 3b are mirror-symmetrical with each other with respect to the plane in which also lies the axis of the stereo lens (6).

25. Stereomicroscope as defined in one of the preceding claims, **characterized in that** it is equipped as a surgical microscope without lens carrier and that for the switching device 5 a remotely controllable electric drive is provided to bring about the remotely controlled switching between the two lenses (6,7).

26. Stereomicroscope as defined in one of the preceding claims, **characterized in that** the gear (10) comprises at least one gear wheel (23a, 23b) and one gear rack (24) or a crank mechanism (35) with a cam (36) which are disposed or configured so that during a displacement they bring about a misalignment (Vs) with misalignment com-ponents (Vsx, Vsy) in two spatial directions of a plane.

27. Additional element for a stereomicroscope, in particular according to one of the preceding claims, with a microscope holder (14), with a gear (10), with a carrier (12) for a microscope body that can be displaced relative to the holder (14) and with a switching device (5) supported on the holder (14) and provided with lens mounts for at least one stereo lens (6) and at least one compound lens (7), as well as with a binocular beam splitter (2a), wherein all said components form a single unit which can selectively be connected with or detached from a focus-adjusting mechanism (9) of a stand (13) and a microscope body (4).